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Agriculture

Forest
Service

**Southwestern
Region**



United States
Department of
the Interior

Bureau of Land
Management

**New Mexico
State Office**



Draft Environmental Impact Statement for the Buckman Water Diversion Project

**Santa Fe National Forest and Taos
Field Office of the BLM in Santa Fe
County, New Mexico**



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Dear Reader,

We are pleased to announce the release of the draft environmental impact statement (DEIS) for the Buckman Water Diversion Project. This DEIS is the result of more than 2 years of discussion among the lead agencies, the project applicants and the public regarding a direct water diversion from the Rio Grande. This diversion would provide water to the customers of the project applicants, which are the City of Santa Fe, Santa Fe County and Las Campanas Limited Partnership. The DEIS provides the analytical basis for determining the set of actions that will best meet the purpose and need for the project while minimizing environmental and social impacts.

We are providing a description of the Forest Service-Bureau of Land Management Preferred Alternative in this letter and a copy of the DEIS for your review and comment. Public input is an important and integral part of identifying and analyzing impacts and assessing the tradeoffs when making decisions. We value your thoughts and look forward to your comments. Specific information on how to submit your comments is provided at the end of this letter.

The DEIS contains an Abstract and Executive Summary that provide brief overviews of the proposed project. The details of the proposed project and alternatives are provided in the first three chapters, as follows:

Chapter 1, Purpose and Need for Action and Background

Chapter 2, Proposed Action and Alternatives (including mitigation, monitoring, and permitting requirements)

Chapter 3, Affected Environment and Environmental Impacts

Chapter 4 includes lists of the DEIS preparers and agencies, organizations and individuals contacted. A references cited section and index are also included at the end of the document.

The Proposed Action (PA) in the DEIS is the preliminary proposal developed by the project applicants. The Proposed Action includes many elements that are common to all action alternatives that were analyzed. Improvements to Buckman Road and the locations of most major facilities associated with the Proposed Action would be part of all action alternatives. However, because this project includes a number of facilities spaced across several miles of Federal lands, alternatives were developed based on issues that arose regarding potential impacts of specific project facilities. Thus the DEIS describes the following sets of alternatives:

1. a set of alternatives for the sediment treatment facility near the river;
2. a set of alternatives for a facility to dispose of the sand once it is removed from the river water;
3. a set of alternatives for raw water transmission pipelines;
4. a set of alternatives for treated water transmission from city/county facilities to the north end of the project area;
5. a set of alternatives for upgrading electric power to the near-river facilities; and
6. a set of alternatives for placing power at the city/county water treatment facility.

As required by the National Environmental Policy Act (1969), the No Action Alternative was also fully analyzed in the DEIS and considered during selection of the Preferred Alternative. With this alternative, none of the facilities or road improvements proposed would be permitted.

Based on this DEIS, the USDA Forest Service and Bureau of Land Management have identified the Preferred Alternative for this project. The Preferred Alternative, described below, consists of either the Proposed Action or alternatives from each of the six sets of alternatives previously described. In selecting the Preferred Alternative, the lead agency decision makers favored alternatives that: (A) have the least adverse impacts to resources managed by the Federal agencies; (B) avoid creating new utility corridors through otherwise open space; and (C) allow for maximum flexibility of the applicants to work out solutions together. It is important to note that for several key issues, the agencies have identified two preferred action alternatives because impacts are very similar, and/or other agencies and entities have a role in determining the final selection. Final selection of project facilities will be made after public and agency comments have been received and considered, and once the final environmental impact statement (FEIS) has been completed.

The Preferred Alternative would authorize the following facilities that are not changed from the Proposed Action: A diversion structure on the eastern bank of the Rio Grande, Booster Stations 2a and 3a, and water transmission lines connecting them; the treatment facilities for the city/county, water lines connecting the new facilities with existing water lines on the south end of the project and in Las Campanas, and road improvements. The road improvements for Buckman Road may range from minimal to the maximum level described in the DEIS, based on whether sand is trucked away from the river or returned to the river.

- The preferred alternative(s) for the location of the sediment facility is a location that avoids disturbance of the historic Buckman townsite (Alternatives SF1/SF2). These alternatives accommodate sand return to the river or sand trucked away from the site.
- There are two preferred alternatives for the sand disposal element of the project: a return pipeline to the river (Alternative SF1) is preferred if the Environmental Protection Agency (EPA) permits it, or trucking sand away from the site (Alternative SF2) is preferred if EPA does not permit sand return.
- There are also two preferred alternatives for the pipeline connecting Booster Station 1a with Booster Station 2a because the impacts to Federal lands are very similar with either of the two options (PA or RWP1).
- For the treated water route from the new city/county water treatment facility to the existing water line from the Buckman Well Field, the two preferred alternatives are either the Proposed Action (PA), which places the line in a utility easement along Las Campanas Drive or an alternative that routes the line back to Dead Dog livestock well (TWP3). These alternatives minimize impacts to Federal lands in the vicinity and avoid creating new utility corridors.
- The preferred alternative for the power upgrade to the river is the Proposed Action (PA), which places the new line underground from the Buckman substation to the river facilities completing the loop to the existing line with minimal impacts to resources (especially scenery).
- The preferred alternative for the Water Treatment Plant power upgrade is to place the substation adjacent to the power transmission line next to Caja del Rio Road, then connect to an existing buried line that runs along the road, to a point where a new buried line would run to the water treatment plant (AGP1a). This alternative is preferred because it avoids creating a new utility corridor.

The Forest Service and Bureau of Land Management will consider all comments received and will respond to substantive comments in the FEIS. Those who submit substantive comments during the comment period will be eligible to appeal the project decision under Forest Service appeal rules (36 CFR §215) and BLM appeal rules (43 CFR, Part 4). The abstract located at the front of the DEIS describes in more detail the nature of the comments you should provide.

Individual respondents may request confidentiality. If you wish to withhold your name and street address from public review or from disclosure under the Freedom of Information Act, you must state this prominently at the beginning of your written comment. Such requests will be honored to the extent allowed by law. All submissions from organizations or businesses, and from individuals identifying themselves as representatives or officials of organizations or businesses, will be made available for public inspection in their entirety.

An electronic version of this document can be found on Web pages maintained by either the Forest Service (www.fs.fed.us/r3/sfe/) or BLM (www.nm.blm.gov). Information regarding more exact dates of the comment period is also located at these sites. Comments on this DEIS must be received or postmarked within 60 days of the Environmental Protection Agency's publication of the Notice of Availability in the Federal Register.

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Draft Environmental Impact Statement for the Buckman Water Diversion Project

Lead Agencies: USDA Forest Service and USDOJ Bureau of Land Management

Cooperating Agencies: U.S. Bureau of Reclamation, City of Santa Fe, NM and County of Santa Fe, NM

Title and Location of Proposed Action: Buckman Water Diversion Project, located in Santa Fe County, NM

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Abstract

This environmental impact statement documents an analysis of the effects of a proposal to divert water from the Rio Grande. The proposed Buckman Water Diversion Project is designed to address the immediate need for a sustainable means of accessing water supplies for the City of Santa Fe, Santa Fe County, and Las Campanas Limited Partnership. Most of the water to be diverted would be derived from the San Juan-Chama Project, a U.S. Bureau of Reclamation inter-basin water transfer project. The remainder would be “native” water rights owned by the parties and diverted from the Rio Grande.

The Proposed Action would include a diversion structure at the Rio Grande; water transmission facilities including pumps and booster station buildings, water tanks, settling ponds and pipes; water treatment facilities, electric power improvements; and road improvements necessary to build and operate the facilities. A No Action Alternative was also considered, which means none of the facilities proposed would be authorized. The lead agency decision makers have identified their preferred alternative based on the following principles: (A) Favor alternatives that have the least adverse impacts to resources managed by the Federal agencies; (B) Favor alternatives that avoid creating new utility corridors through otherwise open space; and (C) Favor alternatives that allow for maximum flexibility of the applicants to work out solutions together. Where impacts to Federal lands are similar, lead agencies may prefer more than one alternative. These principles have led to selection of a set of preferred alternatives that will avoid disturbance to the historic Buckman townsite, minimize visual impacts on viewers from White Rock overlook and along Buckman Road, and avoid creating new utility corridors. The letter accompanying the DEIS describes the sets of actions comprising the preferred alternative in detail.

Review Comments: Reviewers should submit their comments during the 60-day review period for this draft EIS so they may be considered in the decisionmaking process. The Forest Service and Bureau of Land Management will consider all comments received and will respond to substantive comments in the final EIS (40 CFR §1503.4). Those who submit substantive comments during the comment period will be eligible to appeal the project decision under Forest Service appeal rules (36 CFR §215) and BLM appeal rules (43 CFR, Part 4). Reviewers must structure their participation in the National Environmental Policy Act process so that it is meaningful. Environmental objections that could have been raised at the draft stage may be waived if not raised until after completion of the final EIS. Comments on the draft EIS should be specific, address the adequacy of the EIS or merits of the alternatives, along with supporting rationale (40 CFR §1503.3).

Comments on this draft EIS must be received or postmarked within 60 days of the Environmental Protection Agency's publication of the Notice of Availability in the Federal Register.

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List of Acronyms

ac — acre
ac-ft/yr — acre-feet per year
AQB — Air Quality Bureau
BBER — Bureau of Business and Economic Research
BLM — Bureau of Land Management
BOR — Bureau of Reclamation
BS — Booster Station
Buckman Project — Buckman Direct Diversion Project
CDM — Camp, Dresser & McKee
CEQ — Council on Environmental Quality
CFR — Code of Federal Regulations
cfs — cubic feet per second
City — City of Santa Fe
CO — carbon monoxide
County — Santa Fe County
dB — decibels
DO — dissolved oxygen
EIS — Environmental impact statement
EPA — Environmental Protection Agency
FEMA — Federal Emergency Management Agency
FICUN — Federal Interagency Committee on Urban Noise
Forest Plan — Santa Fe National Forest Plan, 1987
FS — USDA Forest Service
ft — feet
gpm — gallons per minute
ISC — Interstate Stream Commission
Las Campanas — Las Campanas Limited Partnership
 L_{dn} — average noise level day and night
 L_{eq} — equivalent noise level
 $L_{eq} dBA$ — weighted average noise levels
LC — Las Campanas
MCL — Maximum Contaminant Level
MCLG — Maximum Contaminant Level Goals
mgd — million gallons per day
mg/L — milligrams per liter
mm — millimeter
MRC — Municipal Recreation Complex
MRGCD — Middle Rio Grande Conservancy District
msl — mean sea level

NAAQS — National Ambient Air Quality Standards
 NAWQA — National Water Quality Assessment
 NEPA — National Environmental Policy Act
 NHPA — National Historic Preservation Act
 NMDGF — New Mexico Department of Game and Fish
 NMED — New Mexico Environment Department
 NMFRO — New Mexico Fisheries Resource Office
 NMNHP — New Mexico Natural Heritage Program
 NO₂ — nitrogen dioxide
 NOI — Notice of Intent
 NPDES — National Pollutant Discharge Elimination System
 NRHP — National Register of Historic Places
 NTU — Nephelometric Turbidity Unit
 O₃ — ozone
 O&M — operation and maintenance
 OHV — off-highway-vehicle
 OSE — Office of State Engineer
 Pb — lead
 PL — Public Law
 PM — particulate matter
 PNM — Public Service Company of New Mexico
 PUC — Public Utilities Committee
 RMP — Taos Resource Management Plan, 1998
 ROS — Recreation Opportunity Spectrum
 ROW — right-of-way
 RWP — raw water pipeline
 SF — Sediment Facility
 SHPO — State Historic Preservation Officer
 SMS — Scenery Management System
 SO₂ — sulfur dioxide
 SPNM — Semi-Private Non-Motorized
 SWPPP — Stormwater Pollution Prevention Plan
 SWRP — Southside Water Reclamation Plant
 TCP — traditional cultural properties
 TDS — total dissolved solids
 TSS — total suspended solids
 TWP — treated water pipeline
 USACE — U.S. Army Corps of Engineers
 USFWS — U.S. Fish and Wildlife Service
 USGS — U.S. Geological Survey

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VMS — Visual Management System
VQO — Visual Quality Objectives
VRM — Visual Resource Management
WTP — water treatment plant
WWTP — wastewater treatment plant
YR — year

Executive Summary

Introduction

This draft environmental impact statement (EIS) documents an analysis of the effects of a proposal to divert water from the Rio Grande to meet certain near-term water supply needs. The analysis has been conducted in compliance with the National Environmental Policy Act (NEPA). The proposed Buckman Water Diversion Project (Buckman Project) is designed to address the immediate need for a sustainable means of accessing water supplies for the applicants, the City of Santa Fe, New Mexico (City), Santa Fe County (County), and Las Campanas Limited Partnership (Las Campanas). Most of the water to be diverted would be derived from the San Juan-Chama Project, which is a U.S. Bureau of Reclamation (BOR) inter-basin water transfer project that supplies water from the greater Colorado River basin to the Rio Grande basin through a tunnel system. The remainder would be native water rights owned by the parties and diverted from the Rio Grande. The project would be located in large part on lands administered by the U.S. Department of Agriculture, Forest Service (FS) and the U.S. Department of the Interior, Bureau of Land Management (BLM), who are serving as co-lead agencies for this EIS. BOR and the City and County are serving as cooperating agencies.

Location

The proposed point of diversion is located on the east bank of the Rio Grande in northern New Mexico, near the historic Buckman townsite. The proposed diversion site is about 15 miles northwest of the City of Santa Fe. It is located about 3 miles downstream from where Route 4 crosses the Rio Grande at the Otowi Bridge, which is where streamflow data have been recorded by the U.S. Geological Survey (USGS) for more than a century. In addition to the diversion, the project would involve treatment and conveyance of water through pipelines that would generally follow roads and existing utility corridors. Water would be conveyed through these proposed pipelines to Las Campanas as well as the City and County.

Purpose and Need

As demonstrated by drought conditions in 1996, 2000, and 2002, continuing water shortages in the City and County resulted in a critical and immediate need for water. To meet this need, the applicants are seeking sustainable means of accessing surface water supplies that would use the applicants' water rights by diverting San Juan-Chama Project water and native Rio Grande water while reducing their reliance on over-taxed ground water resources.

The Buckman Well Field, a group of ground water wells located near the river in the vicinity of the Buckman site, is currently being used to access existing water rights in order to provide water to the City and County water service areas and Las Campanas. However, the well field cannot provide a reliable and sustainable source of water. Well yields have been reduced; ground water levels near the well field have undergone substantial declines; and depletions of nearby streams could cause limitations to pumping. At current well production levels, undesirable consequences to ground water levels and continued depletion of nearby streams are expected to occur unless an alternate reliable water supply is found.

In addition to ground water concerns, storage levels in the City's two surface water reservoirs located on the Santa Fe River, a tributary of the Rio Grande, fluctuate widely depending on seasonal and annual runoff conditions and potable water demand. These reservoirs receive surface water runoff from the Santa Fe Canyon watershed above the City. Overall Santa Fe River

reservoir capacities cannot provide the necessary dependability to provide the water quantities needed to sustain the Santa Fe region during drought conditions.

Overview of Proposed Project

The proposal would allow the construction and operation of the Buckman Project on public lands managed by the FS, BLM, and Santa Fe County. The City and County and Las Campanas have each submitted permit applications requesting the use of these lands for this water diversion project. The Buckman Project would involve the diversion of San Juan-Chama water, which is released from storage in upstream reservoirs, and native Rio Grande water. The Buckman Project is proposed to be designed and constructed with the capacity necessary to meet the City's and County's near-term needs for water through the year 2010, and Las Campanas' needs through community build out, based on various physical, technical, and environmental limitations.

Decisions to Be Made

The analyses presented in this document, coupled with public, agency, and tribal comments received following its release as a public draft EIS, will provide the basis for decisions by the joint lead agencies. The forest supervisor for the Santa Fe National Forest and the Taos Field Office manager for BLM will decide to authorize or not authorize implementation of the project on lands under their stewardship. The Forest Service will make decisions about facilities on Forest Service administered lands, including the diversion structure and the sediment handling facility. The BLM will make decisions about certain pipeline routes and power upgrade locations. Decisions about pipelines and other features that will involve both the Forest Service and BLM will be made jointly. A decision other than the No Action Alternative would include approval to proceed with implementation of the Proposed Action or the incorporation of alternative features that include sediment handling alternatives, pipeline routing alternatives, and a power upgrade alternative. Any alternative could include mitigation and monitoring measures.

Public and Agency Involvement

The lead agencies and applicants have initiated and facilitated an open and collaborative process for agency and public involvement. The process included formal public scoping and a variety of formal and informal channels of communication. Regular coordination with affected or interested agencies and applicants will also be part of the process. Following publication of the draft EIS, hearings will be held to allow agencies, organizations, and the public to comment on the draft EIS.

Meetings have been held with representatives of various agencies and special interest groups. The lead agencies welcome cooperation with other agencies and organizations and are willing to consider scheduling additional meetings upon request. In addition, in accordance with the requirements of the National Historic Preservation Act (NHPA) and the revised 36 CFR 800 regulations of Section 106, Executive Order 13084, and Consultation and Coordination with Indian Tribal Governments, tribal consultation occurs early and throughout the NEPA process through tribal consultation letters initiated on August 5, 2002. Followup consultation will be scheduled with any tribal organizations that express interest in the project. In addition, the tribal consultation process will continue through the public review phase following distribution of the draft EIS.

The formal public scoping process was implemented with the July 22, 2002, “Federal Register” publication of the Notice of Intent (NOI) to Prepare an EIS. The NOI was an invitation to interested parties to submit suggestions on the scope of the analysis. The NOI also provided information on how to participate and contribute to the final decision regarding the proposed project and alternatives. In addition, the project was posted on the Schedule of Proposed Actions on the Forest Service Web site at <http://www.fs.fed.us/r3/sfe/>.

The scoping process included internal scoping of issues amongst the lead agencies, applicants, and other affected agencies, as well as public scoping. The lead agencies formally solicited comments from the public on August 20, 2002 and August 29, 2002, at public scoping meetings held at the Sweeney Convention Center in Santa Fe, New Mexico. Following the scoping meetings, a tour of the project area was organized by the lead agencies. Any interested parties, including representatives of other agencies, organizations, or the public were invited to participate. The tour was conducted on October 16, 2002. The formal public scoping process was concluded on September 5, 2002, with the exception of comments received during the tour.

One hundred and thirty-seven public scoping comments were received. The majority of comments were in 6 categories each having 10 or more comments. These categories were: water resources; purpose and need for the proposed action; infrastructure; biological resources; cumulative impacts of the proposed action; and alternatives to the proposed action.

Issues

Issues are defined as concerns of the potential effects from the proposed project. The lead agencies’ interdisciplinary team, along with interested agencies and the public, identified issues for this project during the scoping process. The collaborative scoping process was also used to identify which issues should be emphasized or de-emphasized in order to narrow the scope of the EIS in accordance with NEPA regulations. Issues are considered to be key issues if there is a potential that the impacts of a proposal cannot be avoided by applying standard mitigation measures.

The following key issues receive the primary focus of attention in this document:

- **Land Tenure and Use** – The project would require new facilities and pipeline corridors to be constructed and operated on Federal lands managed by the BLM and FS. Construction of pipelines on Las Campanas land could have some temporary effects of property and traffic within the community. In addition, some BLM and FS lands would be dedicated for use by the City, County, and Las Campanas, thus unavailable for other public activities.
- **Water Resources** – The project would have some effects on water flows in the Rio Grande; there would also likely be a beneficial effect on local ground water tables in the area, in that the new facilities would reduce reliance on wells for local water supplies.
- **Biological Resources** – The project would result in some loss of habitat due to construction and operation of facilities. Potential effect on fish and aquatic habitats below the proposed project site due to effects on water flow are very minimal. No adverse effects to special interest or protected species are expected including possible consequences to the Rio Grande silvery minnow (*Hybognathus amarus*), a species listed under the Endangered Species Act as endangered.

- **Cultural Resources** – Construction of project facilities could have some effect on the historic, prehistoric, or Native American resources in the affected area. In particular, the site of the historic Town of Buckman, which has been determined eligible for listing on the National Register of Historic Places, could be affected by the Proposed Action.
- **Scenic Resources** – The project would have some effect on the scenic resources within the proposed project area. The water diversion structure and associated infrastructure would be partially visible from the White Rock Overlook. In other project areas, the water diversion infrastructure would be visible from roadways and selected viewpoints. In addition, improvements to Buckman Road would result in moderate visual contrasts with the existing landscape characteristics from curve straightening, dip sections, and gravel surfacing.

Other issues include air quality, environmental justice, geology and soils, noise, recreation and traffic, and socioeconomics.

Alternatives Considered but Eliminated from Further Study

Many alternatives were considered but eliminated from detailed study because they would not meet the stated purpose and immediate near-term need for a sustainable means of accessing water supplies for the applicants. Coupled with the need for surface water access through diversion of San Juan-Chama Project water and native Rio Grande water is the requirement to reduce reliance on over-taxed ground water resources. Additionally, it should be noted that this proposed project has an independent utility from the City and County's long-term water management strategy, which could consider different water diversion locations and other water management options. Alternatives considered but eliminated from further analysis are briefly summarized below.

- **Additional Ground Water Pumping** – Additional ground water pumping was considered, however, it would not meet the purpose and need for the project. During drought conditions, and concurrent with depleted storage levels in the McClure and Nichols Reservoirs, the Buckman Well Field could not be relied upon to provide a sustainable water supply. Therefore, additional ground water pumping does not meet the purpose and need for the project.
- **Other Surface Water Diversions** – Other surface diversion sites were considered, however, primarily because of time considerations, they would not meet the purpose and need for the project, which includes a critical and immediate need for increased water supplies. The applicants conducted numerous studies of water diversion alternative locations. Site selection criteria included consideration of time required to implement, engineering feasibility, minimizing the need for new facilities, use of existing rights-of-way (ROWs), and economics. Using these selection criteria, only one of five sites—Buckman—passed the screening process. The four other potential sites initially considered did not meet the schedule requirements, and each had problems meeting one or more of the other selection criteria.
- **Water Conservation** – Water conservation measures have been implemented to combat drought conditions, but it was determined that water conservation measures alone would not meet the purpose and need for the project. Water conservation is a necessary component of overall water management. Formal water conservation plans are already required for the continued use of water rights and for future water rights applications to the New Mexico Office of the State Engineer. The Federal government also requires a

water conservation plan for all water contracted under a Federal program e.g., San Juan-Chama waters. Conservation measures are already an integral part of a water management strategy and during times of water supply shortages, additional water supplies would still be necessary. Therefore, this alternative does not meet the purpose and need for the proposed project.

- **Alternative Technologies** – Several alternative technologies were considered but disregarded because they did not meet the needs of the individual applicants. Many possible configurations exist that were not evaluated in detail. Examples include an alternative configured with one water treatment plant to serve both the City/County needs as well as the potable water requirements of Las Campanas; various pipeline configurations; and pumping river water directly to the water treatment facilities without sediment removal. These alternatives were not considered in detail but disregarded because they do not meet the needs of the individual applicants, or because they offer a variation of an alternative considered in detail without responding to a substantial issue.

Alternatives Considered, Including the Proposed Action

No Action Alternative. The No Action Alternative would mean that the Buckman Project would not be permitted. The Buckman Well Field would continue to be used to access existing water rights and to provide water to the City/County water service areas and the Las Campanas community. However, the well field would not provide a reliable and sustainable source of water due to declining well yields, substantial reductions in ground water levels near the well field, and potential limitations to pumping due to depletion of nearby streams. Other means of achieving the goal of accessing the surface water would likely be pursued. The applicants would continue to develop long-term water management strategies. However, the planning horizon on these efforts is about 10 years and it is not likely that these long-term strategies would be useful in addressing the near-term drought protection needs.

Elements Common to All Action Alternatives. The Proposed Action would include many elements that are common to all action alternatives. Improvements to Buckman Road and the locations of most major facilities associated with the Proposed Action would be common to all action alternatives. Project elements where differences occur are in the sediment removal facilities, some pipeline routings and power upgrades. A sediment facility associated with the Proposed Action and two alternative sediment facilities are being considered. In addition, a raw water pipeline and several treated water pipeline routes are being considered as is a power upgrade alternative. In the discussions of the alternatives that follow the Proposed Action description, the related features of the Proposed Action are first described as a basis for comparison.

Proposed Action. The facilities necessary to implement the Proposed Action include a diversion structure on the eastern bank of the Rio Grande, sediment separation facilities, booster stations, storage and treatment facilities, water conveyance pipelines, Buckman Road improvements, and power upgrades. The locations of facilities associated with the Proposed Action and other alternatives are illustrated on Figure 1. The raw water pipelines from the point of diversion would be located within existing utility easements that parallel or use Buckman Road on BLM lands, with smaller segments on FS, County, State, and private lands. From Buckman Road, within BLM lands, the City and County raw water pipeline would branch off in a southerly direction utilizing approximately 4 miles of existing ROWs that are adjacent to unimproved maintenance

roadways. The City and County pipeline would terminate at a proposed water treatment plant adjacent to Caja del Rio Road. The Las Campanas raw water pipeline would proceed southeasterly, approximately 5 miles within an existing ROW to its terminus at Las Campanas. Road improvements along Buckman Road would be necessary to provide for the safe operation of construction and project vehicles. Buckman Road is a hard packed dirt road with numerous ruts and limited line of sight in some areas. Roadway improvements would consist of adding a gravel base, construction of roadside drainage ditches, roadway straightening in areas with limited line of sight, and the construction of low water crossings at some streambed locations.

Two new water treatment plants would be required, where the raw water would be processed to safe drinking water standards. The Las Campanas treatment plant would be located on Las Campanas land and operated by Las Campanas. The City and County treatment plant would be located on BLM land leased to the City, just west of Caja del Rio Road. New treated water pipelines would be installed from the treatment plants to convey water into the existing Las Campanas and City and County water distribution systems.

Estimated water diversion quantities used for analysis in this document are based on annual demand projections that extend to the year 2010 for the City and County, while the demand for Las Campanas is projected through community build out (1,717 homes). These projections translate to approximately 8,730 acre-feet per year (ac-ft/yr), currently estimated to be 5,230 ac-ft/yr for the City; 1,700 ac-ft/yr for the County; and 1,800 ac-ft/yr for Las Campanas. The proposed diversion facility is sized for a combined net peak diversion of approximately 28.2 cubic feet per second (cfs), which meets the combined peak needs of the City, County, and Las Campanas.

Sediment Facility Alternatives. The sediment facility location for the Proposed Action would be in close proximity to the Rio Grande and constructed on the historic Buckman townsite. This area is within the viewshed of the river and riverside visitors, and is readily visible from the observation platform in White Rock Overlook Park. Construction and operation would occur on the historic Buckman townsite. Several alternatives were developed in response to these viewshed and cultural resource issues. All alternatives would involve mechanical (vortex) separators to remove the sand particles greater than 0.1-mm from the diverted river water.

- **Sediment Facility Alternative SF1** – For this alternative the facilities would be the same as for the Proposed Action, but the location would be different. In order to minimize effects to the viewshed and the Buckman townsite, Sediment Facility Alternative SF1 was developed. This alternative would move the sedimentation facility southeast of the proposed location and generally out of sight from area visitors and observers at White Rock Overlook Park. The location would be entirely off the Buckman townsite.
- **Sediment Facility Alternative SF2** – Sediment Facility Alternative SF2 was developed as a contingency plan should EPA not issue a sediment return discharge permit under the National Pollutant Discharge Elimination System. This alternative would require trucking out sediment for disposal at the Caja del Rio Landfill.

Under this alternative there would be no sediment return line from the Rio Grande Sediment Facility to the Rio Grande. The sand would be discharged to lined ponds for storage and drying. Based on estimated sediment loading of the material coarser than 0.1 mm, plus an additional 5 percent entrapment of smaller sediments, two lined ponds would be required. Each pond would be about 75 feet by 150 feet by 8 feet deep. One pond would be in operation, receiving sand from

the vortex separators, while the other would be used for storage and drying. Dried sand would be removed and transported by truck approximately 20 miles for disposal at the Caja del Rio Landfill.

Pipeline Alternatives. Alternatives are being considered for two segments of the Proposed Action pipelines. For the Proposed Action, two raw water pipelines are being considered between the river and the second booster station, one for conveying water to Las Campanas and the other for conveying water to the City and County. A single pipeline is being considered as an alternative. In addition, three alternatives are being considered for the 18,113-foot treated water pipeline that would run from the proposed City/County water treatment plant (WTP) at the Municipal Recreation Complex (MRC) to existing Booster Station 3.

- **Raw Water Pipeline Alternative** – This alternative would involve substituting a single pipeline for a double pipeline from the booster station near the river up to the next proposed booster station, located near Dead Dog Stock Well along Buckman Road. This alternative is being considered for reasons that include reduced disturbance of two cultural sites in the utility ROW, less cost, and reduced ground and habitat disturbance associated with construction.
- **Treated Water Pipeline Alternatives** – Three treated water pipeline alternatives are being considered that involve different alignments of the northern water transmission line for treated water between the proposed City/County WTP at the MRC and the City's existing Booster Station 3. These alternatives are being considered for reasons that include minimizing destruction/replacement of the County roadway in Las Campanas, lessening traffic disruptions, and use of a shorter, less costly pipeline alignment, and possibly even affecting property values. Other reasons include reduced commitment of BLM land and the precedent for long-term commitment of some new lands to utility uses.

Power Upgrade Alternatives. Preliminary estimates from the Public Service Company of New Mexico (PNM) indicate that power loads associated with the Buckman Project would accelerate the need for planned power upgrades in the area. The power upgrades associated with the Proposed Action include facilities along Buckman Road, the existing Buckman transformer substation, located across from Booster Station 2, and a new 12.47 kV underground power line within a utility corridor between Booster Stations 2/2A and the river. In addition, the Proposed Action includes a new substation that would be constructed adjacent to the proposed MRC WTP. A new above ground 115 kV power line segment less than one-half mile in length would be required to connect the new substation to existing 115 kV above ground lines in the area. The final color of any new substation would require approval from the BLM.

- **Power Upgrade Alternatives AGP1a and AGP1b** – Alternative AGP1 would involve two primary differences from the Proposed Action. Under Alternative AGP1a, a new substation would be located under or adjacent to the existing 115 kV line which currently crosses Caja Del Rio Road. A new underground 12.47 kV (4 wires for each circuit) line approximately 200 to 400 feet long would run east from the new substation and connect to the existing underground distribution system that runs along Caja Del Rio Road. A second new underground line would run west from the existing distribution system within the proposed right-of-way for the access road to the WTP, approximately one-half mile.

Alternative AGP1b would require an upgrade of the existing Buckman transformer station (as with the Proposed Action). Under Alternative AGP1b, an above ground 12.47

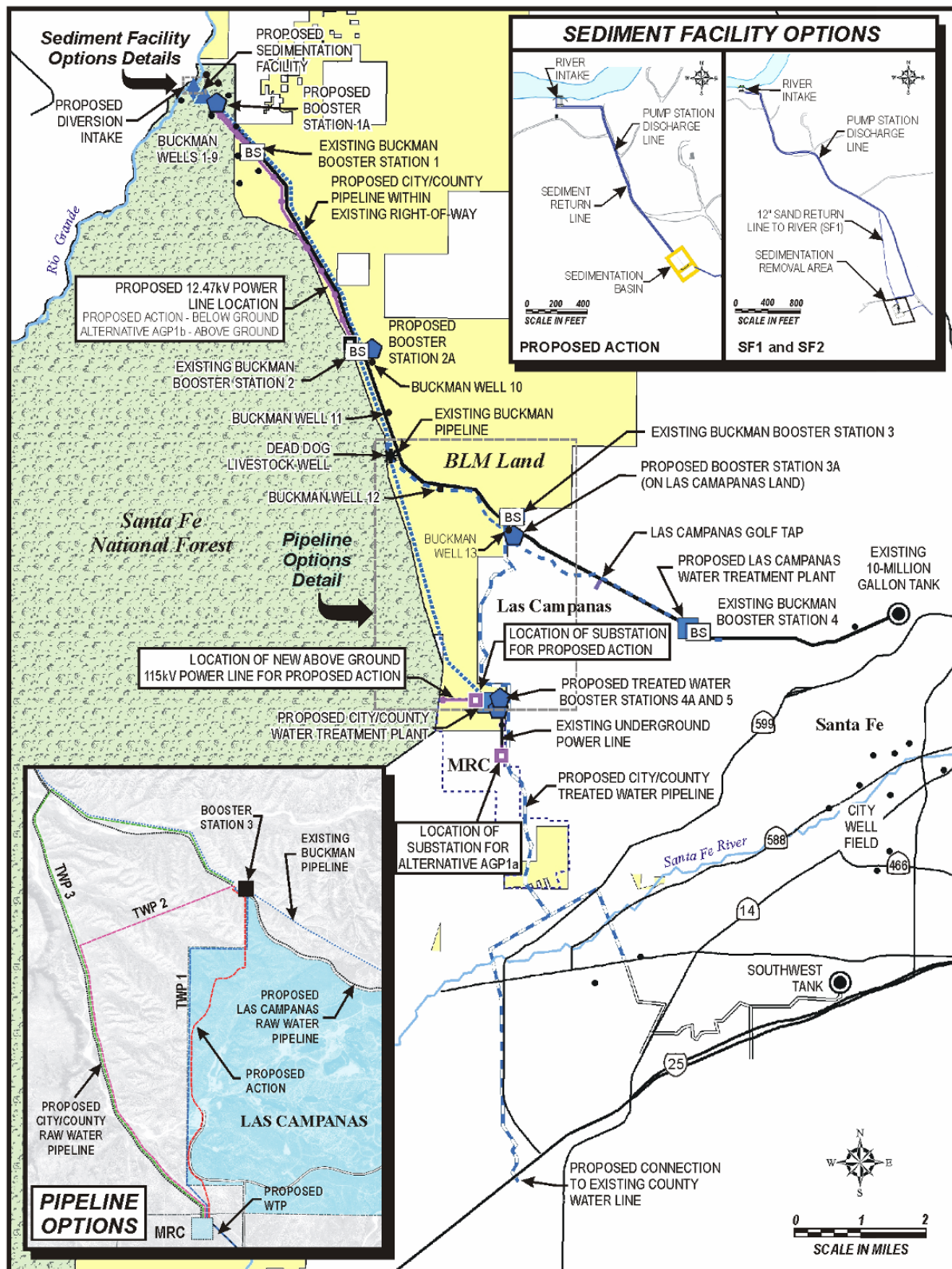


Figure 1. Location of facilities for the Proposed Action and alternatives.

kV power line from the Buckman transformer station, near Booster Station 2/2A, to the river route would be built as an alternative to the buried 12.47 kV line.

As with the Proposed Action, the final color of the upgraded Buckman transformer station and new substation would be approved by BLM.

Mitigation Measures and Monitoring Requirements

Mitigation measures and monitoring requirements are summarized below. Except where specific alternatives are referenced, these measures would apply to all alternatives, including the Proposed Action. Regardless of which alternative is selected, mitigation would be incorporated into the project to reduce the severity of any potential environmental consequences. Specific details about how these measures would be implemented and who would be responsible for their implementation would be specified in the implementation plan. The implementation plan would be prepared with assistance from government agency personnel following a Record of Decision on the project, if it is decided to proceed with any alternative other than the No Action Alternative.

Land Tenure and Use. Based on a potential increase in visitor use to this area resulting from proposed upgrades to Buckman Road, visitor use would be monitored. Prior to construction and after construction is complete, agencies will evaluate the magnitude of increased visitation, and the FS and BLM will take actions to manage visitation as needed to protect the resources and facilities in the area.

Water Resources. Placement of a cofferdam in the river that would surround and isolate the construction area would serve to mitigate most direct effects on turbidity during construction of the water diversion structure. Design criteria, which would restrict or eliminate withdrawals at or below minimum flow thresholds would mitigate possible reductions to the lowest flows and associated impacts to aquatic habitat. Residual offsets for ground water depletion from past pumping would need to be implemented as mitigation for switching to the surface diversion.

Biological Resources. A native plant revegetation and nonnative invasive plant species control program would be required to mitigate the effects of vegetation removed during construction. Placement of a cofferdam in the river that would surround and isolate the construction area would serve to decrease turbidity during construction of the water diversion facility; thus limiting and mitigating the potentially adverse effects to aquatic fauna. A pre-construction survey for special status avian fauna would be conducted at the water diversion site along the Rio Grande, booster station and water treatment locations, and the selected pipeline routes. Depending upon the survey data, a mitigation plan would be developed at that time and specific mitigations, if any, would be based on the survey findings. To ensure long-term revegetation success, a monitoring program would be conducted to assess revegetation success and evaluate recolonization by nonnative invasive plant species.

Cultural Resources. Effects to cultural resources would be mitigated through implementation of the following practices. Archaeological sites would be avoided where possible. Fencing would be placed around sites near the construction area, but not subject to direct affect, to protect them from inadvertent intrusion by construction equipment and personnel. Additionally, a qualified archaeological monitor would be present during all construction excavation and surface modifications within known and potential site areas. If previously unknown subsurface cultural deposits are discovered, construction activities in the area would halt and the agency would

determine appropriate treatment in consultation with the State Historic Preservation Office (SHPO). Archaeological sites that could not be avoided during construction would have archeological testing or data recovery efforts conducted prior to construction. Subsurface sites discovered during construction activities would also undergo testing or data recovery treatment. Archaeological data recovery would be conducted in compliance with a formal data recovery plan approved by the involved agencies and the SHPO. Standard erosion control measures would be in effect during construction activities. All workers conducting construction activities would be educated regarding cultural resources in the project area, appropriate avoidance measures, and associated restrictions per federal statutes. In addition to the measures implemented during the construction phase, interpretive signage that explains the history of the Buckman area, through text and pictures, would be offered to Los Alamos County for placement at the White Rock Overlook Park viewing platform.

Scenic Resources. Visual effects would be mitigated through implementation of a number of measures that would be specified in the implementation plan, including: (1) design of structures, selecting color and texture of building surfaces and roofing materials to complement or match the surrounding native soils or vegetation; (2) siting buildings to take advantage of terrain, where feasible, to screen from view; (3) using chain link fences color-bonded to match the predominant natural colors in the area (i.e., brown) and reduce reflectivity of metal; (4) undulating edges of sediment ponds or other measures to break up rectilinear lines that do not match the natural surroundings; (5) coloring concrete in the diversion intake structure and Buckman Road low water crossings to match the surrounding area—for example, using darker tones to blend in better and reflect less light; and (6) using appropriate building materials based on setting for generating traffic signs and posts.

Soils. Erosion control measures would be designed in compliance with the requirements for preparation of a Stormwater Pollution Prevention Plan (SWPPP). Implementation of the SWPPP would mitigate the potential effects of construction activities. These measures would be designed to minimize or avoid the loss of soil, prevent the establishment or exacerbation of rill and gullies, and minimize potential water quality deterioration from sheet erosion that could result from construction and roadway runoff. Trees, one-seeded juniper and piñon pine, that are removed during construction would be mulched and spread throughout the construction disturbance areas to protect and minimize soil loss. The techniques used would consist of mulching and/or a lop and scatter of larger diameter material such as branches and tree trunks to prevent or minimize sheet erosion.

Environmental Consequences

Environmental consequences associated with the alternatives, including the Proposed Action, were evaluated in thirteen resource areas. Environmental consequences as related to the key issue areas are summarized below.

Direct and Indirect Effects of No Action

The environmental consequences to land tenure and use, water resources, biological resources, cultural resources, and scenic resources associated with No Action are discussed below.

Land Tenure and Use. There were no effects to land tenure and use identified under the No Action Alternative.

Water Resources. The No Action Alternative would result in continued depletion of the aquifer in the Buckman area and the flows of the Rio Grande and its tributaries. The City would continue to be required to offset depletions with releases of San Juan-Chama water into the Rio Grande and by retiring native water rights owned by the City in the two tributaries and the Rio Grande. The No Action Alternative would not affect sediment transport and deposition, water quality, or flooding in the Rio Grande or its tributaries, since flows in the river would not change. However, the near-term demand for water in the region would not be satisfied by the current supply system. The applicants would seek other water rights and other methods for meeting the projected demand.

Biological Resources. There were no effects to biological resources identified under the No Action Alternative.

Cultural Resources. There were no effects to cultural resources identified under the No Action Alternative.

Scenic Resources. There were no effects to scenic resources identified under the No Action Alternative.

Direct and Indirect Effects of the Proposed Action

The environmental consequences to land tenure and use, water resources, biological resources, cultural resources, and recreation and scenic resources associated with the Proposed Action are discussed below.

Land Tenure and Use. Fifty-nine acres would be permanently affected due to the improvements to Buckman Road, construction of the diversion structure, sediment facility booster stations, water treatment plants, and associated infrastructure. Special use and ROW permits would need to be issued. The construction and operation of the proposed new PNM substation near the MRC WTP would remove 2 acres of grazing land from one grazing lease resulting in a slight effect. However, because the proposed facilities are approved under existing management plans and agreements, and most of the land disturbance would occur along existing utility corridors where current land use is similar to the proposed land use, there would be minimal effects to land tenure and use under the Proposed Action. In addition, development would not occur as a result of the level of improvement measures for Buckman Road.

Water Resources. The Proposed Action is not expected to have noticeable effects on surface water resources, either during construction or once it is operational. Generally, with the project in place, the effect on average flows in the Rio Grande would be less than 1 percent. Of that 1 percent effect, at least two-thirds and likely more would be associated with diversion of water imported to the Rio Grande from the inter-basin San-Juan Chama Project. In addition, the project would have little measurable effect on water quality and essentially no effect on flooding or flood potential. There would be a beneficial effect on water use in the region. The Proposed Action would indirectly affect water rights in that the County would be required to acquire water rights in order to fully use the diversion, and Las Campanas would be required to extend their leased rights. The Proposed Action would result in less reliance on ground water for local water supplies, and would have a beneficial effect on local ground water resources. Ground water models predict that the depressed ground water levels near the Buckman diversion site would rebound over a time period of several decades, possibly as much as 100 feet in some areas. There would be no changes to ground water quality.

Biological Resources. The Proposed Action would result in the permanent loss of approximately 59 acres of vegetation. Additionally, modification or clearing of vegetation for facility work area construction boundaries and preparation of the pipeline corridors would temporarily affect an additional 247 acres. For these areas temporarily disturbed, the vegetation would be reestablished through the native plant revegetation program.

During site clearing activities and the actual construction event, direct mortality could occur for less mobile species (reptiles, amphibians, and small mammals). No species population would be adversely affected. The 59 acres converted to Buckman Road improvements, facilities, and other infrastructure would be permanently lost as potential predator hunting habitat and foraging or hiding cover for other wildlife species. There would be a concurrent decrease in quality of the habitat immediately adjacent to the facilities due to increased noise levels, traffic, lights, and other human activity. The adjacent habitat also would experience a loss of quality from the reduction in size, segmentation of the habitat, and restriction on mobility for some species. These effects would be minor and no species population would be adversely affected.

During cofferdam construction and demolition, localized increases in turbidity would occur. Aquatic fauna in the area would be temporarily affected during these activities. There could be limited, localized impacts from sediment returned to the river. The very localized impacts to aquatic habitat would have no measurable impact to fish or macroinvertebrate communities in the immediate project area.

A project-specific search of the New Mexico Natural Heritage Program database did not reveal any records of currently listed special status species in the proposed project area. Sixteen special status species were identified that have potential occurrence or habitat within the construction areas. Project construction and operations are not expected to adversely affect any population of a special status species. One species, Rio Grande silvery minnow, while not occurring in the area, could experience an effect from the proposed diversion of native Rio Grande water. However, the Buckman Project's commitment to use native flows during nonpeak times and the design of the Buckman water diversion structure to not allow water diversion at flows 150 cfs or less coupled with the regional mitigation measures would serve to avoid an adverse effect to the silvery minnow population.

Cultural Resources. The historic town of Buckman and the Denver and Rio Grande railroad grade would be physically disturbed by the sediment facility, Booster Station 1A, road improvements, raw water pipeline, return flow pipeline, gas pipeline, and power line construction. Two additional sites would be disturbed by the raw water pipeline and power line south of Buckman. Three sites would be disturbed by the treated water pipeline. The existence of cultural resources within the project area for the above ground power line near the MRC WTP is currently unknown. However, it is likely that construction impacts to resources could be avoided through careful placement of structures away from any identified resources. Visual and audible effects to the townsite of Buckman would occur. Vandalism, illegal artifact collecting, and inadvertent harm to all sites could occur. There has been no response by Indian tribes to requests for consultation regarding the presence of traditional cultural properties and sacred sites in the project area.

Scenic Resources. Construction activities would be noticeable by site users and visitors to the White Rock Overlook Park observation platform. These effects would be short term. The water diversion structure and associated infrastructure would be within the foreground view of river

users (boaters) and site visitors, and could be seen at a distance from the White Rock Overlook Park observation platform. After vegetation is reestablished, the facility would not be readily apparent to the site visitor or viewshed observers at White Rock Overlook Park. Boaters would be aware of the structure as they proceed past, but due to the design, it would be compatible with the river environment and not introduce a highly discordant element into the riverscape. The Buckman Booster Station 1A and sedimentation facility would be apparent to the casual site user and viewed from White Rock Overlook. However, construction of these facilities at the old townsite of Buckman using historical architecture that is compatible with the landscape character would maintain the historical and cultural context.

Buckman Road improvements, including surfacing with gravel, would increase the reflectivity of the road and introduce a different color element to existing conditions. Buckman road would become even more apparent to the casual viewer. Generally, existing utility corridors and booster station locations would be used which would serve to minimize impacts to the scenic environment. Once plants are re-established, pipeline corridors would blend in with existing conditions. Pump station architecture that blends into the surrounding landscape would serve to minimize the visual effect of additional structures.

The proposed MRC water treatment plant (WTP) would be designed to blend into the surrounding landscape. Thus, it would not be readily evident to a distant viewer after successful vegetation reestablishment. However, the proposed above ground power line to the MRC and the proposed power substation at the MRC would have visual effects. The final color of the substation would be approved by BLM. The level of change to the foreground-middle ground perspective would be moderate due to the extent and prominence of the water treatment facilities, Buckman Road improvements, and associated infrastructure. Effects to scenic resources would be compliant with FS and BLM standards.

Direct and Indirect Effects of the Sediment Facility Alternatives

The environmental consequences to land tenure and use, water resources, biological resources, cultural resources, and scenic resources associated with the sediment facility alternatives are discussed below.

Land Tenure and Use. Alternative SF1 would require a new pipeline corridor for the return flow pipeline. Alternative SF2 would require a greater amount of truck traffic than the Proposed Action.

Water Resources. For Alternative SF1, the effects on water resources would be the same as for the Proposed Action. For Alternative SF2, the maximum diversion would be reduced from 32 cfs to 28.2 cfs; however, since there would be no return flow for sand re-injection, the net diversion would still be 28.2 cfs under peak withdrawal conditions. Therefore, the effects on streamflow would be nearly identical to those for the Proposed Action. The effects of sedimentation and water quality would be even less than the minimal effects described for the Proposed Action. Flooding and ground water effects for either sediment facility alternative would be the same as those described for the Proposed Action.

Biological Resources. The sediment return line for Alternative SF1 would be longer compared to the Proposed Action resulting in the short-term disturbance of approximately 3 additional acres of plant and animal habitat. Short-term wildlife effects from construction of a return pipeline would be avoided under Alternative SF2. Alternative SF2 would result in episodic and increased truck

traffic that could result in short-term wildlife avoidance of the Buckman Road corridor. However, the effects would be negligible and of short duration as wildlife populations would habituate to changes in road traffic. Under Alternative SF2 there would be no return of sediment to the Rio Grande. Thus, the potential effects identified for sediment return consequences under the Proposed Action would not occur. The effects on special status species would be the same as those associated with the Proposed Action for all sediment facility alternatives.

Cultural Resources. Alternative SF1 would remove the disturbance to the Buckman townsite caused by the Proposed Action's sediment facility and Booster Station 1A. Alternative SF1 would also have less of a visual and audible effect on the Buckman townsite. Alternative SF2 would remove the disturbance to the Buckman townsite caused by the Proposed Action's sediment facility, Booster Station 1A, and the return flow pipeline. Alternative SF2 would have less of a visual and audible effect on Buckman than the Proposed Action, but more of an effect than Alternative SF1 due to the presence of haul trucks nearby.

Scenic Resources. Alternatives SF1 and SF2 would place the sediment facility substantially out of the White Rock Overlook viewshed, and the facilities would not be visual to Rio Grande boaters or other visitors to the river front area. Thus, effects to visual resources would be greatly reduced. Alternative SF2 would require trucking out the sediment and require two sediment storage ponds. Drying sediment would be a different color than the surrounding environment and would be noticeable from some higher elevation viewing locations.

Direct and Indirect Effects of the Pipeline Alternatives

The environmental consequences to land tenure and use, water resources, biological resources, cultural resources, and scenic resources associated with the pipeline alternatives are discussed below.

Land Tenure and Use. Alternative RWP1 would reduce disturbance of land because only one trench would be dug instead of two. Alternatives TWP1 and TWP2 would require the creation of a new utility corridor for a portion of their lengths. Alternative TWP3, while longer, would use existing utility corridors and have no effect on land tenure and use. In addition, a ROW would be issued for any pipeline crossing agency land.

Water Resources. Effects on water resources for all pipeline alternatives would be the same as those discussed for the Proposed Action.

Biological Resources. Alternative TWP3 would require approximately 10 acres more than the Proposed Action but would occur in an existing utility corridor. Construction would occur entirely in existing utility line ROWs, thereby avoiding degradation to plant communities and animal habitat. The effects on aquatic communities would be the same as for the Proposed Action for all pipeline alternatives. The effects on special status species would be the same as for the Proposed Action for all pipeline alternatives.

Cultural Resources. Alternative RWP1 would reduce the extent of physical disturbance to Buckman townsite and the railroad grade. Alternative TWP1 would affect one site. Alternative TWP2 would affect no sites. Alternative TWP3 would cross the railroad grade four times.

Scenic Resources. Alternative TWP1 would require the construction and operation of the treated water return line in a new utility corridor along BLM and Las Campanas lands. Alternative TWP2

would install the treated water return line back along the Dead Dog well corridor and then cut east in a new utility corridor to Booster Station 3. Alternative TWP3 would use the existing utility corridors to deliver the treated water. Construction and establishment of a new pipeline corridor (Alternatives TWP1 and TWP2) would affect the local viewshed by introducing a straight-line swathe and bare ground. Even with revegetation, the new corridor would be noticeable in the short term until vegetation is re-established. Development of a new corridor could encourage changes to and increased recreation use in the area and subsequent degradation to the natural viewshed.

Direct and Indirect Effects of the Power Upgrade Alternative

The environmental consequences to land tenure and use, water resources, biological resources, cultural resources, and scenic resources associated with the power upgrade alternative are discussed below.

Land Tenure and Use. The effect on land tenure and use would be the same as for the Proposed Action for Alternative AGP1. No effects to grazing would result from the construction and operation of the new substation along Caja del Rio Road. Approximately 1.8 additional acres (based on a 30-foot-wide corridor) of land would be disturbed for the power line connection between the existing power source and the MRC WTP; however, the power line would be located within an existing ROW and, therefore, would not change land tenure and use.

Water Resources. The effects on ground water would be the same as for the Proposed Action for the power upgrade Alternative AGP1.

Biological Resources. Alternative AGP1 effects would be similar to the Proposed Action for the power upgrades. Between Booster Station 2/2A and the river, disturbance would be similar to the Proposed Action. Once in place the 12.47 kV overhead lines could provide additional raptor perch sites between Booster Station 2/2A and the river.

Cultural Resources. The above ground power line between the Buckman substation and the river would result in physical disturbance of the Buckman townsite, but the extent of disturbance would be greatly reduced from the Proposed Action. Visual effects to the Buckman townsite from the above ground power line would be greater than the upgrade for the Proposed Action.

Scenic Resources. Alternative AGP1 would require an upgrade of the existing Buckman transformer station and construction and operation of a new substation approximately 1 mile southeast of the MRC WTP, adjacent to an existing power line along Caja del Rio Road. The substation would be in the viewshed of some houses present along Caja del Rio Road. Under AGP1a an existing buried power line would be used to supply power from the new substation to the MRC WTP. Therefore, transmission lines under AGP1a would not be apparent to visitors and residents along Caja Del Rio Road. Under AGP1b, overhead power lines from the proposed diversion intake site to Booster Station 2A would be apparent to site visitors and introduce a discordant visual element into the landscape.